

ADDITIONAL NOTES ON THE GENUS *GHINIA*. I

Harold N. Moldenke

GHINIA Schreb.

Additional bibliography: A. L. Juss. in Orbigny, Dict. Univ. Hist. Nat. 13 :184. 1849; Mold., Phytologia 47: 404--419. 1981.

GHINIA BOXIANA Mold.

Additional bibliography: Mold., Alph. List Comm. Vern. Names 7. 1939; Mold., Phytologia 47: 415--419. 1981.

GHINIA CARDENASI Mold., Geogr. Distrib. Avic. 28, nom. nud. 1939; Bull. Torrey Bot. Club 58: 504--505. 1941.

Synonymy: *Ghinia cardenasii* Mold. apud R. C. Foster, Contrib. Gray Herb 184: 169. 1958. *Tamonea cardenasii* (Mold.) Troncoso, Darwiniana 18: 322 & 323, fig. 5. 1974. *Tamonea cardenasi* Troncoso, Darwiniana 18: 411. 1974.

Bibliography: Mold., Geogr. Distrib. Avic. 28. 1939; Mold., Bull. Torrey Bot. Club 68: 504--505. 1941; Mold., Known Geogr. Distrib. Verbenac., ed. 1, 40 & 93 (1942) and ed. 2, 96 & 185. 1949; E. J. Salisb., Ind. Kew. Suppl. 11: 100. 1953; Mold., Résumé 113 & 456. 1959; Mold., Phytologia 28: 457 & 463. 1974; Mold., Fifth Summ. 1: 150 & 182 (1971) and 2: 879. 1981; Troncoso, Darwiniana 18: 322, 323, 409, & 411, fig. 5. 1974; Mold., Phytol. Mem. 2: 142, 174, 405, 444, & 548. 1980; Mold., Phytologia 47: 415. 1981.

Illustrations: Troncoso, Darwiniana 18: 322, fig. 5. 1974.

An herb, to about 50 cm. tall, woody at the base; branches slender, acutely tetragonal, very densely puberulent throughout, longitudinally costate; nodes annulate, not ampliate; principal internodes 1--3.5 cm. long; leaves decussate-opposite; petioles slender, 3--6 mm. long, very densely puberulent like the branchlets; leaf-blades chartaceous, rather uniformly green on both surfaces or somewhat lighter beneath, ovate or rarely elliptic, 1.5--3.5 cm. long, 0.8--2 cm. wide, apically obtuse in outline, marginally sharply serrate from almost the base to the apex with acute antrorse teeth, basally abruptly acute or subtruncate, densely puberulent above and densely canescent beneath when young, very obscurely puberulent or subglabrate above in age, more plainly puberulent beneath; midrib slender, subimpressed above, prominulous beneath; secondaries slender, 6--8 or more per side, close together, subparallel, straight and ascending, mostly extending directly to the sinuses between the teeth and secondarily into the teeth themselves, mostly subimpressed above, prominulous beneath; veinlet reticulation sparse, obscure on both surfaces; inflorescence axillary, spicate, 4.5--18 cm. long, many-flowered, the flowers during anthesis barely overlapping, the lowermost separate; peduncles (3--5 cm. long) and rachis slender, rather densely incanous-puberulent throughout, tetrago-

nal and costate; pedicels obsolete; bractlets linear or filiform, 3--4 mm. long, puberulent; calyx tubular, 4--5 mm. long, 1--1.5 mm. wide, 5-costate, hyaline between the ribs, densely incanous-puberulent, its rim 5-apiculate, the apiculations filiform and 1--1.5 mm. long; corolla hypocrateriform, blue or lilac, its tube cylindric, curvate, 5--7 mm. long, the limb 5--7 mm. wide; fruiting-calyx spreading-campanulate, about 6 mm. long and to 6 mm. wide, appressed-puberulent, its rim scalloped and long-apiculate, the apiculations filiform and about 2 mm. long; fruit obovate, the body about 6 mm. long and 5 mm. wide, glabrous, apically prominently reticulate, with 3 divergent horns to 4 mm. long, sharply pointed and spine-like.

This species is based on *M. Cárdenas 2946* from grassy pampas at 230 m. altitude between Ilias and Chiquitos, Santa Cruz, Bolivia, collected in October, 1934, and deposited in the herbarium of the Field Museum of Natural History in Chicago.

Hatschbach encountered what seems to be this taxon in caatinga in Bahia, Brazil, flowering in March, and describes the corollas as having been "blue".

Material of this species has been misidentified and distributed in some herbaria as *G. curassavica* var. *australis* Mold., "*Stachitarpetha*" sp., "*Timotoua*" sp., and "*Tamonea curassavica* (L.) Pers.?", the last by P. C. Standley.

Citations: BRAZIL: Bahia: *Hatschbach 42120* (N, Z). Minas Gerais: A. P. Duarte 7541 [Herb. Brad. 27652] (N). BOLIVIA: Santa Cruz: *M. Cárdenas 2946* (F--755045--type, N--isotype, N--photo of type, Z--photo of type); *Peredo s.n.* [El Pori, 9-IV-1946] (N).

GHINIA CURASSAVICA (L.) Oken, Allg. Naturgesch. 3 (2): 1104. 1841.

Synonymy: *Veronicae similis fruticosa curassavica teucrifoliis, flore galericulato* Herm., Parad. Bot. Prod. 240, pl. 240. 1689. *Violae surrectae latiore folio species peregrina* Pluk., Phytogr. pl. 234, fig. 4. 1692. *Verbena nodiflora curassavica foliis menthae*. R. Morison, Pl. Histor. Univ. Oxon. 3: "408" [=418] & 419, sec. 11, pl. 25, fig. 11. 1699. *Verbena nodiflora curassavica, foliis menthae* Herm. ex Ray, Hist. Plant. 3: suppl. 287. 1704. *Verbena curassavica* L., Sp. Pl., ed. 1, imp. 1, 1: 19. 1753. *Veronicae similis fruticosa curassavica* Herm. apud L., Sp. Pl., ed. 1, imp. 1, 1: 19, in syn. 1753. *Kaempferia* Houst. ex L., Sp. Pl., ed. 1, imp. 1, 1: 19, in syn. 1753. *Verbena curassavica* L., Syst. Nat., ed. 10, 852. 1759. *Verbena diandra, spic. longis, calyc. aristatis, fol. ovatis serratis* L. apud J. A. Murray in L., Syst. Veg., ed. 13, 62. 1774. *Kaempferia* Banks ex Houst., Reliq. 3: pl. 2. 1781. *Tamonea spinosa* Sw., Nov. Gen. Sp. Pl., imp. 1, 94. 1788. *Zapania curassavica* (L.) Lam., Tabl. Encycl. Méth. Bot. [Illust. Gen.] 1: 59. 1791. *Ghinia curassavica* Raeusch, Nom. Bot., ed. 3, 8, nom. nud. 1797. *Ghinia tamonea* Raeusch., Nom. Bot., ed. 3, 8, nom. nud. 1797 [not *G. tamonea* J. F. Gmel., 1789]. *Ghinia spinosa* Willd. in L., Sp. Pl., ed. 6, 1: 114. 1797. *Ghinia verbenacea* Sw., Fl. Ind. Occ. Prod. 2: 1089--1090. 1800. *Tamonea verbenacea* Sw., Fl. Ind. Occ. Prod. 2: 1089, in syn. 1800. *Ghinia fructibus quad-*

rispinosis, foliis glabris Willd. apud Gaertn. f., Fruct. Sem. Pl. 3: 174, in syn. 1805. *Verbena (curassavica) diandra, spicis longis, calycibus aristatis, foliis ovatis argute serratis* L. apud Gaertn. f., Fruct. Sem. Pl. 3: 174, in syn. 1805. *Tamonea curassavica* (L.) Pers., Syn. Pl. 2: 139. 1806. *Tamonea fructibus quadrispinosis, foliis glabris* Willd. apud Lam., Encycl. Méth. Bot. 7: 567, in syn. 1806. *Verbena (curassavica) diandra, spicis longis, calycibus aristatis, foliis ovatis, argute serratis* L. apud Lam., Encycl. Méth. Bot. 7: 567, in syn. 1806. *Zapania (curassavica), spicis longis, calycibus aristatis, foliis ovatis, argute serratis* Lam., Encycl. Méth. Bot. 7: 567, in syn. 1806. *Veronicae similis fruticosa, curassava, teucriffoliis, flore galericulato* Herm. apud Lam., Encycl. Méth. Bot. 7: 567, in syn. 1806. *Violae surrectae, latiore folio, species peregrina* Pluk. apud Lam., Encycl. Méth. Bot. 7: 567, in syn. 1806. *Tamonia scabra* Schlecht. & Cham., Linnaea 5: 99. 1830. *Tamonea scabra* Schlecht. & Cham., Linnaea 6: 372--373. 1831. *Verbena diandra, spicis longis, calycib. aristatis, fol. ovatis, argute serratis* L. apud Richter, Cod. Bot. Linn. 35, in syn. 1835. *Tamonea scabra* Cham. & Schlecht. apud D. Dietr., Syn. Pl. 3: 610. 1843. *Tamonia curassavica* Aubl. ex Voigt, Hort. Suburb. Calc. 473. 1845. *Pedaliium filiforme* Pers. apud P. DC., Prodr. 9: 256, in syn. 1845. *Ischnia verbenacea* P. DC., Prodr. 9: 257. 1845. *Tomonea verbenacea* Schau. in A. DC., Prodr. 11: 556. 1847. *Pedaliium filiforme* Pav. apud Wittstein, Etymolog.-bot. Handwörtererb. 477. 1852. *Ghinia curassavica* (L.) Millsp., Publ. Field Columb. Mus. Bot. 2: 174. 1906. *Ghinia curassavica* Millsp. apud Prain, Ind. Kew. Suppl. 4, imp. 1, 97. 1913. *Ghinia spinosa* (Sw.) Britton & P. Wils., Scient. Surv. Porto Rico 6: 139. 1925. *Pedaliium spicatum* Sessé & Moc. ex Mold., Prelim. Alph. List Inv. Names 33, in syn. 1940. *Maceria* Sessé & Moc. ex Mold., Prelim. Alph. List Inv. Names 32, in syn. 1940. *Guinia curassavica* (L.) Millsp. ex Mold., Phytol. Mem. 2: 409, in syn. 1980. *Tamonea curassavica* (L.) Millsp., in herb.

Bibliography: Herm., Parad. Bot. Prod. 240, pl. 240. 1689; Pluk., Phytogr. pl. 234, fig. 4. 1692; R. Morison, Pl. Histor. Univ. Oxon. 3: "408" [=418] & 419, sec. 11, pl. 25, fig. 11. 1699; Ray, Hist. Plant. 3: Suppl. 287. 1704; L., Sp. Pl., ed. 1, imp. 1, 1: 19. 1753; L., Syst. Nat., ed. 10, 852. 1759; L., Sp. Pl., ed. 2, 28. 1763; Crantz, Inst. Rei Herb. 1: 572. 1766; [Retz.], Nom. Bot. 11. 1772; J. A. Murr. in L., Syst. Veg., ed. 13, 62. 1774; Christm. & Panzer, Vollst. Pflanzensyst. Houttuyn 5: 122--123. 1779; Houst., Reliq. 3: pl. 2. 1781; Sw., Nov. Gen. Sp. Pl., imp. 1, 94. 1788; J. F. Gmel. in L., Syst. Nat., ed. 13, imp. 1, 2 (1): 41. 1789; Lam., Tabl. Encycl. Méth. Bot. [Illust. Gen.]: 59. 1791; J. F. Gmel. in L., Syst. Nat., ed. 13, imp. 2, 2: 41. 1796; Rausch., Nom. Bot., ed. 3, 8. 1797; Willd. in L., Sp. Pl., ed. 6, 1: 114. 1797; Sw., Fl. Ind. Occ. Prod. 2: 1089--1090, pl. 21 [sup.]. 1800; Balbis, Cat. Pl. Hort. Bot. Taur. 48. 1804; Gaertn. f., Fruct. Sem. Pl. 3: 173--174, pl. 213, fig. 2. 1805; Lam., Encycl. Méth. Bot. 7: 567--568. 1806;

Pers., Syn. Pl. 2: 139. 1806; Dum. Cours., Bot. Cult., ed. 2, 2: 626--627. 1811; Balbis, Cat. Stirp. Hort. Acad. Taur. 80. 1813; Pers., Sp. Pl. 3: 349. 1819; Steud., Nom. Bot., ed. 1, 873. 1821; Sweet, Hort. Brit., ed. 1, 1: 324 (1826) and ed. 2, 418. 1830; G. Don in Loud., Hort. Brit., ed. 1, 248. 1830; Schlecht. & Cham., Linnaea 5: 99 (1830) and 6: 372--373. 1831; G. Don in Loud., Hort. Brit., ed. 2, 248 & 552. 1832; Richter, Cod. Bot. Linn. 35. 1835; Sweet, Hort. Brit., ed. 3, 552. 1839; Peterm., Cod. Bot. Linn. Ind. Alph. 196. 1840; Oken, Allg. Naturgesch. 3 (2): 1104. 1841; Steud., Nom. Bot., ed. 2, 2: 750. 1841; D. Dietr., Syn. Pl. 3: 610. 1843; P.DC., Prodr. 9: 257. 1845; Voigt, Hort. Suburb. Calc. 473. 1845; Schau. in A.DC., Prodr. 11: 529 & 556. 1847; Wittstein, Etymolog.-bot. Handwörterb. 477. 1852; Griseb., Abhandl. Königl. Gesell. Wissen. Götting. 7: 255. 1857; Buek, Gen. Spec. Syn. Candoll. 3: 198, 469, & 494. 1858; Griseb., Cat. Pl. Cuba 214. 1866; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 1: 1027 & 1234. 1893; Briq. in Engl. & Prantl, Nat. Pflanzenfam. 4 (3a): 148. 1895; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 2: 1034 & 1285. 1895; Millsp., Field Columb. Mus. Publ. Bot. 2: 174. 1906; M. Kunz, Anatom. Untersuch. Verb. [thesis] 35. 1911; Prain, Ind. Kew. Suppl. 4, imp. 1, 97. 1913; Britton & Millsp., Bahama Fl. 367. 1920; P. C. Standl., Contrib. U. S. Nat. Herb. 23: 1236. 1924; Britton & P. Wils., Scient. Surv. Porto Rico 6: 139. 1925; Urb. & Ekm., Arkiv Bot. 22A (10): 106. 1929; P. C. Standl., Field Mus Publ. Bot. 3: 404 (1930) and 8: 323. 1931; Stafp, Ind. Lond. 3: 279 (1930) and 6: 429. 1931; N. L. Britton, Addisonia 17: pl. 547. 1932; Junell, Symb. Bot. Upsal. 1 (4): 18 & 19, fig. 24. 1934; Fedde & Schust., Justs Bot. Jahresber. 58 (2): 329. 1938; Mold., Geogr. Distrib. Avic. 14 & 28. 1939; Mold., Alph. List Comm. Vern. Names 7, 8, & 12. 1939; Mold., Prelim. Alph. List Inv. Names 32, 33, & 54. 1940; Mold., Suppl. List Comm. Vern. Names 21. 1940; Wangerin & Krause, Justs Bot. Jahresber. 60 (1): 753. 1941; Worsdell, Ind. Lond. Suppl. 1: 433. 1941; Mold., Alph. List Inv. Names 33, 34, & 57. 1942; Mold., Known Geogr. Distrib. Verbenac., ed. 1, 16, 24, 25, & 93. 1942; Mold., Phytologia 2: 103. 1944; Mold., Alph. List Inv. Names Suppl. 1: 17 & 21. 1947; Mold., Known Geogr. Distrib. Verbenac., ed. 2, 30, 42, 44, & 185. 1949; E. D. Merr., Journ. Arnold Arb. 31: 268 & 277. 1950; Bravo Hollis & Ramírez Cantú, Anal. Inst. Biol. Mex. 22: 421. 1951; Erdtman, Pollen Morph. Pl. Tax., ed. 1, 449. 1952; Alain in León & Alain, Fl. Cuba, imp. 1, 4: 282--283, fig. 122. 1957; Prain, Ind. Kew. Suppl. 4, imp. 2, 97. 1958; Mold., Résumé 36, 50, 52, 301, 319, 329, 353, 363, 393, & 456. 1959; Sw., Nov. Gen. Sp. Pl., imp. 2, 94. 1962; Erdtman, Pollen Morph. Pl. Tax., ed. 2, 449. 1966; Gibson, Fieldiana Bot. 24 (9): 230. 1970; Mold., Fifth Summ. 1: 69, 70, 93, & 96 (1971) and 2: 533, 570, 593, 639, 665, 685, 709, 736, & 879. 1971; Mold., Phytologia 24: 498 (1972) and 25: 229 & 240. 1973; Anon., Biol. Abstr. 55 (9): B.A.S.I.C. S.105. 1973; Alain in León & Alain, Fl. Cuba, imp. 2, 2: 283, fig. 122. 1974; Heslop-Harrison, Ind. Kew. Suppl. 15: 60 & 151. 1974; Hocking, Excerpt. Bot. A.23: 292. 1974; Mold., Phytologia 29: 43, 46,

& 56 (1974), 31: 378--380, 398, 400, 403, 405, 408, & 410--412 (1975), 34: 280 (1976), and 40: 415. 1978; Mold., Phytol. Mem. 2: 62, 86, 89, 405, 409, 412, 422, 429, 444, 448, 452, 456, 462, & 548. 1980; Mold., Phytologia 47: 88 (1980) and 47: 411 & 415--419. 1981.

Illustrations: Herm., Parad. Bot. Prod. pl. 240. 1689; Pluk., Phytogr. pl. 234, fig. 4. 1692; Houst., Reliq. pl. 2. 1781; Sw., Fl. Ind. Occ. Prod. 2: pl. 21 [sup.]. 1800; Gaertn. f., Fruct. Sem. Pl. 3: pl. 213 a--g. 1805; Junell, Symb. Bot. Upsal. 1 (4): 19, fig. 24 a--d. 1934; Alain in León & Alain, Fl. Cuba, imp. 1, 4: 282, fig. 122 (1957) and imp. 2, 2: 282, fig. 122. 1974.

A stiffly erect annual or perennial herb, bush, or scraggly subshrub, 35 cm. to 1 m. tall, basally woody, pubescent or scabrid-pubescent throughout or nearly glabrous, branched from the base; roots large; stems at least basally woody; branches suberect, tetragonal, shallowly 2- or 3-sulcate on the leaf-bearing sides; leaves decussate-opposite, relatively rather large, petiolate; petioles rather elongate, to 1.5 cm. long; leaf-blades membranous or thin-chartaceous, ovate, 2--4 cm. long, to 2.5 cm. wide, apically acute, marginally coarsely sharp-serrate or incised-serrate, basally acuminate into the petiole or usually obtuse, venose, penninerved, basally trinerved, scaberrulous above, paler beneath and there inconspicuously, finely, and appressedly puberulent, especially on the venation; inflorescence axillary, erect, racemose and racemiform, elongate to about 15 cm., rather few-flowered, the elongate peduncle and rachis filiform; bractlets beneath the individual flowers minute; flowers distant, small, subsessile or short-pedicellate; calyx membranous, subcampanulate or oblong, about 4 mm. long, 5-striate, 5-dentate, persistent, the teeth subulate-aristate, about 1 mm. long; corolla zygomorphic, hypocrateriform or infundibular to tubular, whitish to lilac, violet, purple, or blue, 5--7 mm. long, the tube narrow, longer than the calyx, basally dilated, apically contracted, the limb 2-lipped, sub-5-fid, the upper lip subrotund, suberect, shallowly emarginate, the lower lip 3-fid, the lobes ovate-subrotund, marginally entire, the central one larger; stamens didynamous; filaments slender, inserted high in the corollatube, 2 very short, the other 2 longer and equaling the tube and often with a median ovate somewhat fleshy scale; style terminal, short, subulate, erect; stigma capitate, 4-lobed; ovary ovate-tetragonal; drupes at first somewhat fleshy, eventually dry and nut-like, obovate or turbinate-tetragonal, 4--5 mm. long, 4-spinose on the apical angles, 4-celled, 4-seeded, the nutlets not separating on maturity, the spines sharp, slender, terete-subulate, the 2 anterior ones longer (about 2 mm. long), farther apart, and more spreading, the 2 posterior ones smaller (about 1 mm. long), approximate, and erect.

The nomenclature of this species is rather confused -- see the discussion under *G. boxiana*. Linnaeus' original (1753) description is: "Verbena diandra, spicis longis, calycibus aristatis, foliis ovatis argute serratis. Veronicæ similis fruticosa curasavica. Herm. parad. 240. Kempfer. Houst. m. ss. Habitat in

Curassao Americes." His citation of the Hermann and Houstoun polynomials as synonyms is critical because Hermann's illustration shows that his name certainly applies to our Bahama-Cuba-Mexican species and not to the Puerto Rico-Antiguan *G. boxiana* and shows how the inappropriate specific epithet was chosen by Linnaeus for it -- Hermann stating that his plant was a cultivated one, the seeds from which it was grown merely said to have come from Curaçao. Almost certainly, they came, instead, from Veracruz, Mexico, where the typical form of the species is common. Willdenow awarded the species a new epithet, *spinosa*, when he transferred it to the genus *Ghinia*, a practice advocated by DeCandolle and long in vogue after that among European botanists, not finally abandoned until the advent of the so-called "American" code of rules.

Swartz (1800) separated the Cuba-Bahaman population as *Tamonea verbenacea*, while Schlechtendal & Chamisso (1830) separated the Mexican population as *T. scabra*. Actually, the West Indian population seems to be identical with the type Mexican plants, although there is more variation in the latter. Dietrich (1843) asserts that *T. curassavica* is from "ins. Caribaeis", not further specifying the particular islands. DeCandolle (1845), in describing his *Ischnia verbenacea*, comments that it possesses "Flos Verbenae. Fructus Pedalii" and classifies the genus in the "Sesameae" or the modern *Pedaliaceae*.

Urban & Ekman (1929) comment that "Si *T[amonea] curassavica* (L.) Pers. in insula Curacae iterum reperta erit, non dubito, quin haec species cum *T. scabra* Cham. et Schlecht. (Cuba, Mexico) identica sit."

The original description of *Tamonia scabra* is "ex toto scabrido-pubescentis, fructu quadrispinoso. -- Habitus Verbenae, spicibus gracilibus sparsifloris elongatis; foliis ovatis, acutis, grosse serratis, in petiolum brevem angustatis ad summum sesquipollicaribus. Flores coerulei. Fructus spinae duae longiores distantes, duae breviores approximatae. -- Tierra caliente, Puerto del Rey. Jul. Hacienda de la Laguna. Oct." To this the author later (1831) added "fruticosa, caulibus inferne lignescentibus. Loco natali adde: Inter Mesachica et Mapilque. Dec."

The colored illustration in Addisonia (1932), labeled "*Ghinia spinosa*", actually represents, not the present species, but *G. boxiana* Mold.

Collectors have found *G. curassavica* growing on rocky plains and slopes, steep wooded slopes and hillsides, along roadsides and riversides, on semi-deserts, in low deciduous and dry thorn forests, among rocks, along rocky trails, in coppices and rinate woods, in potreros, pastures, and thickets, on sandstone in meso-phytic canyons, among limestone rocks, on dry brushy slopes, in cultivated fields and roadside ditches, in deep black or yellow clay or sandy soil, in riparian associations and oak woods, in acahual and secondary vegetation, and on coastal *Acacia* savannas, at altitudes of 15--1750 m., flowering and fruiting from March

to December.

The species is said by King to be a "common woody shrub 0.5 m. tall in sandy loam in open sun", while Ventura refers to it as "scarce in matorral" and "rare in wet places", Shapiro calls it "very abundant" and Martínez-Calderón reports it abundant in acahual and "an abundant annual" in Oaxaca, while Lot reports it "abundant in pastival derived from coastal dunes". Barkley found it to be "rare on shaly loam in desert scrub, 6 in. tall". Rzedowski encountered it on "ladera caliza con vegetación de zacatal". In the Bahamas Webster reports it as "locally a common weed".

Standley (1930) records the species from Belize on the basis of *Schipp* 612, but this collection proves to be *G. spicata* (Aubl.) Mold. In 1931 he refers to the fruit as "black" and the corollas as "blue". Schlechtendal & Chamisso (1830) also refer to the corollas as blue. The species is occasionally cultivated and is, in fact, based on a cultivated specimen.

The corollas are said to have been "blue" on *Breedlove* 10268, *Correll & Popenoe* 50785, *Dorantes Lopez* 273, *Dorantes Lopez & al.* 1035, *Martínez-Calderón* 1462 & 1520, *Moore* 1827, and *Vazquez Yanes* 683, "bluish" on *Galeotti* 747, "light-blue" on *Dressler & Jones* 224, "pale-blue" on *King* 1022 and *Webster & al.* 7142, "lilac" on *Dorantes & al.* 1382 and *Ventura A.* 12920, "bluish-lavender" on *Edwards* 514, "lavender" on *Edwards* 745b, "violet" on *Crutchfield & Johnston* 6109a and *Webster & al.* 10415, "purple-violet" on *Ekman* 13468, "purple" on *García Saucedo* 44, *Martínez-Calderón* 1020, 1030, & 1956, *Rzedowski* 6047, *Soto J. s.n.*, *Vazquez Yanes* 659, and *Ventura A.* 924, and "2 shades of purple" on *Leavenworth* 315; on *Dorantes & al.* 931 they are described as "violenta-blanca", on *Lot & al.* 1862 as "blanca con guías purpuras", on *Fearing & Thompson* 184 as "lower lip dark-blue, upper lip violet", and on *Dressler* 2337 as "lower 3 petals purple, upper 3 petals blue" [but, of course, the corolla only has 5 petals]. *King* 1022 exhibits especially large leaves.

The accepted specific epithet is sometimes uppercased in certain publications and by some herbarium botanists. *Purpus* 6138 is labeled as "*Tamonea scabra* Ch. & Schl. forma". *Cooper* 24 is labeled as from New Providence, "Bermuda" (doubtless an error for "Bahamas"). *Brace* 19 was originally distributed as "No. 121", but the latter number has been struck out by an unknown hand for a reason not known to me. The *Persoon* (1807) is sometimes erroneously cited to page "256".

Alain (1957) records *Ghinia curassavica* from "Terr. yermos" in Cuba and correctly lists it also from Mexico and the Bahama Islands. *Grisebach* (1857) lists it from Antigua, but this is due to a misidentification on his part of the *G. boxiana* Mold. limited to that island and Puerto Rico. *Schauer* (1847) maintains that his *Ischnia verbenacea* applies to an annual, rather than perennial, Mexican plant. *Briquet* (1895) used the name, *Tamonea scabra*, for the entire Mexican population and *T. verbenacea* for that of the "Westindischen Inseln". The species is said by *Sweet* (1830) to have been introduced into English gardens in 1733 from the "W. In-

dies". Willdenow (1797) arbitrarily renamed Linnaeus' taxon *Ghinia spinosa*, using a new specific epithet as was customary among European botanists when a taxon was shifted from one genus to another. Raeschel (1797) lists both his *G. curassavica* and *G. tamonea* as native to Jamaica, but the genus is not known to me from that island.

The *Purpus 15227*, cited below, exhibits very small leaves on some sheets, but the fruiting-calyx and fruit are definitely those of the typical form of this species.

Common and vernacular names reported for the species are "flor morada", "spiny-fruited vervain", "stachliche Traubennuss", "tamonee épineuse", "thorny-fruited tamonea", and "zapane de Curaçao". Don (1830), disagreeing with Sweet (see above), claims the species was not introduced into cultivation in England until 1823.

Citations: MEXICO: Chiapas: *Breedlove 10268* (W--2470277, Z), 36612 (Me--255177; *LeDoux, Dunn, & Wallace 2187* (Ld, N); *Webster, Miller, & Miller 7142* (Me--133602). Guerrero: *Bravo Hollis 578* (Me--50123). Hidalgo: *V. H. Chase 7454 1/2* (Ur, Ur); *M. T. Edwards 745b* (F--915242), 897 (F--915240); *G. L. Fisher 37078* (Gg--339423); *H. E. Moore 1827* (Ba); *Seler & Seler 624* (W--1323148). Oaxaca: *Liebmann 11307* (Ba, W--1315088); *Martínez-Calderón 1520* (Me--167731). San Luis Potosí: *O. M. Clark 7379* (E--1287828); *Crutchfield & Johnston 6109a* (Au); *M. T. Edwards 514* (Au, Du--278655, F--915243); *Hitchcock & Stanford 6905* (Ca--710863, Du--361412, Pl--130114, Po--266461, Se--58991, W--1806783); *Kenoyer s.n.* [Valles, 9-3-38] (Fs); *W. C. Leavenworth 315* (Ld); *J. Rzedowski 6047* (Au, Ip); *J. N. Weaver 682* (La, W--2134166). Tamaulipas: *F. A. Barkley 17M059* (Au--100556); *Dressler 2337* (Mi); *Fearing & Thompson 184* (Au--183338); *W. C. Leavenworth 109* (Ur); *Rozynski 40* (Ca--469709, F--650156), 40a (Mi), 483 (B, F--677845); *Viereck 686* (W--1687365). Veracruz: *Barkley, Rowell, & Webster 2607* (Au, N); *Dressler & Jones 224* (Ca--48899, Me, Mi, N, W--2328468); *Dorantes Lopez 273* (Me--154657); *Dorantes Lopez & al. 931* (Me--179232), 1035 (Me--179237), 1382 (Me--170052); *Erverdberg 110* (T); *Galeotti 747* (Br); *García Saucedo 44* (Mi); *Gonzalez G. 108* (Me--1614069); *F. W. Johnson s.n.* [Cordova, 9-26-06] (N); *Kerber 28* (Br, Cb, Cp, Mu--1779); *R. M. King 1022* (Au--211645, Ld, Mi, W--2397529); *Lot & al. 1862* (Me--161626); *MacDaniels 441* (Ba, F--837807); *Martínez-Calderón 1020* (Ac, N), 1030 (Me--140804), 1462 [Rec. Inf. D001529] (Ld, Me--140637, Mi, N), 1956 [Rec. Inf. D004790] (Ac, Me--145218, Mi); *Matuda s.14* (Mi, N); *Nevling & Gómez-Pompa 486* (Me--213909), 864 (Me--212273); *Purpus 2220* (Ca--83377, F--201780, N, N--photo, W--840339), 6138 (Ca--168104, F--386649), 12040 (W--1409794), 13040 (F--603315), 15227 (Cp, Du--245708, F--650334, N); *Seaton 399* (C, W--60824); *Shapiro 155* (Me--234660); *Soto J. s.n.* [20.VIII.1967] (Ip); *Sousa & Ramos 4791* (Me--90467); *Vazquez Yanes 659* (Me--157202), 683 (Go, Me--157194, W--2790890); *Ventura A. 924* (Mi, Sd--78084), 12920 (Me--232819). State undetermined: *Black 38-5133* [Cofre de Perote] (Be--45822); *F. Müller s.n.* [1853] (M); *Sessé, Moçino, Castillo, & Maldonado s.n.* [1220, *Pedaliium spicatum*] (F--847125, Q, Q). BAHAMA ISLANDS:

New Providence: *Brace* 19 (N); *Britton & Brace* 183 (N, W--429723); *W. Cooper* 24 (T); *Correll & Popenoe* 50745 (N); *Curtiss s.n.* [Nassau, Apr. 24, '03] (N); *P. Wilson* 8407 (N); *Webster, Samuel, & Williams* 10415 (S). CUBA: Havana: *C. F. Baker* 1917 (Es, F--214562, N, W--523656); *Ekman* 13468 (Mi, N, S, W--2113444), 14127 (N, S); *León* 7320 (W--2289084), *s.n.* [Abril 18, 1923] (Ha); *León, Colon, & Albear* 7320 (Ha, N); *Roig & León* 8124 (Es); *Shafer* 94 (Cm, N). Oriente: *Acuña* 17187 (Es, N); *Hioram* 1777 (Se--14933).

GHINIA CURASSAVICA var. *AUSTRALIS* Mold., *Phytologia* 24: 498. 1972.

Bibliography: Mold., *Phytologia* 24: 498 (1972) and 25: 229. 1973; Anon., *Biol. Abstr.* 55 (9): B.A.S.I.C. S.105. 1973; Hocking, *Excerpt. Bot. A.23*: 292. 1974; Mold., *Phytol. Mem.* 2: 142 & 548. 1980; Mold., *Phytologia* 47: 416. 1981.

This variety differs from the typical form of the species in having the pubescence on its branches, branchlets, and lower leaf-surfaces longer, more coarse, more spreading, and decidedly whitish.

The variety is based on *Irwin, Harley, & Smith* 31404 from wet places in the cerrado on the slopes of the Espigão Mestre about 25 km. west of Barreiras, at about 600 m. altitude, in the valley of the Rio das Ondas, Bahia, Brazil, collected on March 3, 1971, and deposited in my personal herbarium. The collectors describe the plant as an ascending herb, about 75 cm. tall, with dark red-violet "heads" -- the flowers, however, are clearly borne on thin, open spikes! Thus far the taxon is known only from the original collection.

Citations: BRAZIL: Bahia: *Irwin, Harley, & Smith* 31404 (W--2709889--isotype, Z--type).

GHINIA CURASSAVICA f. *PARVIFOLIA* Mold., f. nov.

Bibliography: Mold., *Phytologia* 47: 416. 1981.

Haec forma a forma typica speciei foliis parvioribus plerumque ovato-lanceolatis usque ad 10 mm. longis acutis petioliis usque ad 7 mm. longis fructibus parce majoribus spinis brevioribus plerumque 0.5--1 mm. longis calyce maturo usque ad basin vaginatis recedit.

This form differs from the typical form of the species in its leaves being on the average smaller, the petioles to 7 mm. long, the leaf-blades usually narrowly ovate-lanceolate, 1 cm. or less in length, rarely to 1.5 cm. long, apically acute, the fruit slightly larger and the spines shorter, usually only 0.5--1 mm. long, enveloped by the mature calyx to the base of the spines.

The form is based on an unnumbered George L. Fisher collection from Valles, San Luis Potosí, Mexico, at 260 m. altitude, collected on August 3, 1937, and deposited in the Britton Herbarium at the New York Botanical Garden.

Collectors describe the plant in the field as a shrub or suffrutescent perennial herb, 50--60 cm. tall, with green fruit. The late Joseph V. Monachino critically examined *Clark* 6826 and reports the "calyx and corolla 5-parted, the corolla contorted in bud; stamens 4, 2 attached higher up in the corolla-tube and with glan-

dular appendages at the filament tips, the other two attached lower down and with no appendages; the anthers dehisce longitudinally; stigma capitate, 1 lobe aborted; style 1; ovary apex with 4 knobs; ovules 4, 2 each basally attached to incompletely intrusive placentae".

Collectors have encountered this plant in forests and "jungle forests", as well as in low secondary deciduous forests with "suelo cafe arcilloso", along semi-desert and other roadsides, in matorral, on rich bottomlands, in moist rocky places, on hills, and in open areas in brush on shaly ridges, at 10--2050 m. altitude, flowering and fruiting from April to October.

Erdtman (1966) has examined the pollen of *Gaumer 834b* from Mexico and describes the grains as 3-colpor(oid)ate, prolate, 76 x 55 μ , the nexine thinner than the more or less compact extranexinous part of the exine which is traversed by fine more or less radial lines; the "grains very different from those in *Verbena*, more similar to those of *Chascanum*, etc."

The corollas are said to have been "purple" on *Lot 610 & 654* and *Rzedowski 10405*, "2 shades of purple" on *Leavenworth 215*, "lilac" on *Ventura A. 5407* and *Zola B. 587*, and "blue" on *Stanford & al. 886*. A pollen sample has been taken by M. Strick in 1942 from *Rozynski 378*.

The leaves are slightly larger than usual on *Breedlove 19784*, *Matuda 1457*, and *Zola B. 587*. *Purpus 15227* exhibits rather small leaves on some specimens, but the fruiting-calyx and fruit are those of typical *G. curassavica*, so I am regarding it as a depauperate example of that taxon.

Ventura reports the present form "abundant" in Veracruz; Graham & Johnston found it to be a "frequent perennial in brush along an arroyo through shale of the Mendez formation" in Tamaulipas. Breedlove encountered it "on grassy slopes with scattered trees and shrubs of *Acacia*, *Bursera*, *Gliricidia*, *Annona*, and *Daphnopsis*", while Stanford and his associates found it in a "broad damp riverbed among varied vegetation of large shrubs, small trees, and herbs!" Rzedowski found it growing in oak woods on "ladera caliza" in San Luis Potosi.

Material of this taxon has been misidentified and distributed in some herbaria as *Bouchea* sp., *Duranta repens* L., and *Labiatae*.

Citations: MEXICO: Chiapas: *Breedlove 19784* (Me--228925). San Luis Potosi: *O. M. Clark 6847* (E--1287828, N); *G. L. Fisher 3743* (W--1725449), s.n. [Valles, Aug. 3, 1937] (N--type); *Graham & Johnston 4501* (Au--174678, Me--59213, Mi); *W. C. Leavenworth 215* (Ld, N, Ur, Ur); *Edw. Palmer 125* (E--1906519, N, W--470987), 133 (N, W--470994); *Pringle 3547* (Vt); *Purpus 5290* (Ca--157334, F--299034, N, W--463851), 5291 (Ca--157408, F--299035, Me, N, S, W--463852); *J. Rzedowski 10405* (Au, Ip, Me--94831, Mi), 10681 (Ip). Tamaulipas: *O. M. Clark 6826* (E--1287825, N); *Graham & Johnston 4415* (Au--174476, Me--59212, Mi); *Richardson 1517* (Au--302919); *Rozynski 378* (B, F--677844, N, W--1482736), 521 (F--713536, N); *Stanford, Retherford, & Northcraft 886* (Ca--714029, Du--288742, N). Veracruz: *Lot 610* (Me--146541), 654 (Me--14412); *Matuda 1457* (Me--85462, Mh,

Mi, N); *Ventura A.* 5407 (Au, Mi); *Zola B.* 587 (N).

GHINIA CURASSAVICA var. *YUCATANENSIS* Mold., Alph. List Comm. Vern. Names 8, nom. nud. 1939; Carnegie Inst. Wash. Publ. 522: 152. 1940.

Bibliography: Millsp., Field Columb. Mus. Publ. Bot. 1: 317. 1896; Mold., Geogr. Distrib. Avic. 14. 1939; Mold., Alph. List Comm. Vern. Names 8. 1939; Mold., Carnegie Inst. Wash. Publ. 522: 152--153. 1940; Mold., Known Geogr. Distrib. Verbenac., ed. 1, 16 & 93. 1942; Mold., Phytologia 2: 103. 1944; Mold., Known Geogr. Distrib. Verbenac., ed. 2, 30 & 185. 1949; Mold., Résumé 36 & 456. 1959; Mold., Fifth Summ. 1: 70 (1971) and 2: 879. 1971; Mold., Phytol. Mem. 2: 62 & 548. 1980; Mold., Phytologia 47: 411 & 416. 1981.

This variety differs from the typical form of the species in having its leaf-blades apically obtuse or rounded, basally truncate or subtruncate, and the marginal teeth rather obtusish.

It is a perennial herb, slightly woody at the base, 40--65 cm. tall; stems erect, rather much branched; branches erect or ascending, acutely tetragonal, minutely puberulent; leaves petio- late; petioles very slender, 3--10 mm. long, sparsely or densely short-pilose with whitish hairs; leaf-blades thin-chartaceous, ovate, 5--25 mm. long, 4--17 mm. wide, apically rounded or obtuse in outline, basally truncate or subtruncate, marginally rather coarsely dentate from the widest part to the apex with numerous antrorse rather bluntish teeth, very sparsely short-strigillose above with rather scattered whitish hairs, obscurely and very minutely puberulent beneath with brownish hairs especially along the larger venation, the larger venation mostly impressed above and prominent beneath; flowers subsessile or short-pedicellate, remote, small; corolla blue or lilac; fruiting calyx broadly campanulate, to 4.5 mm. long and 6 mm. wide, membranous, 5-ribbed, the ribs projecting at the rim as 5 aristate-subulate apiculations 0.5--1 mm. long; drupes at first fleshy, later dry, turbinate-tetragonal, bearing 3 or 4 stiff wide-spreading horn-like spines 1--3 mm. long.

This variety, limited to the Yucatán Peninsula, is based on *Gaumer 834b* from waste ground about Izamal, Yucatán, Mexico, collected in 1895 and deposited in the Britton Herbarium at the New York Botanical Garden. It was recorded by Millspaugh (1896) as *Tamonea scabra* Cham. & Schlecht and the type collection was distributed under that name. It is described by Gaumer as an "herb 2 feet high, abundant on waste lands". Gaumer and his sons assert that "this plant grows around pools of water where the water is very shallow; it is not abundant in any locality." On the other hand, Moreno refers to it as "abundant".

Collectors have also encountered this plant in low forests and clearings, in thickets on hillsides, and along rocky paths, flowering and fruiting from June to August and in November. The corollas are said to have been "blue" on *Bequaert 46* and *Lundell & Lundell 8176* and "lilac" on *Moreno 284*. Vernacular names reported are "chancolenexnuc", "chan-ko-xnuc", and "chanxnuc".

The typical form of the species, as well as its other subspecific taxa, do not seem to occur on the Yucatan peninsula and differ in their much more acute or acuminate leaf-apex, acute or even cuneate-attenuate leaf-base, and sharply acute or acuminate teeth on the leaf-margins.

Material of the present variety has been misidentified and distributed in some herbaria as typical *G. curassavica* and as *Tamonea curassavica* (L.) Pers., *T. prismatica* (L.) Pers., and *T. scabra* Cham. & Schlecht.

Citations: MEXICO: Quintana Roo: *G. F. Gaumer 1988* (B, Br, Du-199855, F--58786, Gg--160366, Po--174879, S, W--1265819), *1989* (Ca--446041, F--58787, I, Mi, W--1265820); *Moreno 284* (Me--90243). Yucatán: *Bequaert 46* (F--710812, W--1490767), *81* (F--710795, G); *Enriquez 766* (Me--120799); *G. F. Gaumer 834* [Herb. Umbach 15468] (Br, Br, Ca--446226, Du--207670, F--437600, Gg--160703, I, Mi, Ws), *834b* (G--isotype, Gg--164030--isotype, N--type, S--isotype, W--268611--isotype), *24097* (Br, Ca--446074, Du--199772, F--552100, Gg--160620, N--photo, W--1268186, Z--photo), *24228* (Ca--882558, F--552233, S, W--1268304); *Gaumer & Sons 23384* (F--460117, W--1265855); *Lundell & Lundell 8176* (Mi, N); *Steere 1221* (Mi), *1376* (Mi), *2010* (F--668595, Me, Mi).

GHINIA EUPHRASIIFOLIA (B. L. Robinson) Standl., Contrib. U. S. Nat. Herb. 23: 1236. 1924.

Synonymy: *Tamonea scabra* var. *minor* Schlecht. & Cham., Linnaea 6: 373. 1831. *Tamonea scabra* var. *minor* Cham. & Schlecht. apud Schau. in A. DC., Prodr. 11: 529. 1847. *Tamonea euphrasiifolia* B. L. Robinson, Proc. Amer. Acad. 44: 613. 1909. *Ghinia euphrasiifolia* Standl. apud A. W. Hill, Ind. Kew. Suppl. 7: 102. 1929. *Ghinia curassavica* var. *minor* (Schlecht. & Cham.) Mold., Phytologia 47: 88. 1980.

Bibliography: Schlecht. & Cham., Linnaea 6: 373. 1831; Schau. in A. DC., Prodr. 11: 529. 1847; Buek, Gen. Spec. Syn. Candoll. 3: 469. 1858; B. L. Robinson, Proc. Amer. Acad. 44: 613. 1909; Prain, Ind. Kew. Suppl. 4, imp. 1, 232. 1913; Fedde & Schust., Justs Jahresber. 41: 387. 1918; P. C. Standl., Contrib. U. S. Nat. Herb. 23: 1236. 1924; A. W. Hill, Ind. Kew. Suppl. 7: 102. 1929; Fedde & Schust., Justs Bot. Jahresber. 53 (1): 1074. 1932; Mold., Prelim. Alph. List Inv. Names 43. 1940; Fedde & Schust., Justs Bot. Jahresber. 60 (2): 575. 1941; Mold., Alph. List Inv. Names 43. 1942; Mold., Known Geogr. Distrib. Verbenac., ed. 1, 16 & 93. 1942; Mold., Alph. List Inv. Names Suppl. 1: 21. 1947; Mold., Known Geogr. Distrib. Verbenac., ed. 2, 30 & 185. 1949; Prain, Ind. Kew. Suppl. 4, imp. 2, 232. 1958; Mold., Résumé 36, 353, & 456. 1959; Erdtman, Pollen Morph. Pl. Tax., ed. 2, 449. 1966; Mold., Fifth Summ. 1: 70 (1971) and 2: 639 & 879. 1971; Mold., Phytologia 47: 88. 1980; Mold., Phytol. Mem. 2: 62, 548, & 627. 1980; Mold., Phytologia 47: 416. 1981.

A low much-branched shrub; branches flexuous, covered by a yellowish-gray bark; leafy branchlets elongate, tetragonal, strict, grayish-puberulent; leaves very short-petiolate, the peti-

oles to about 1 mm. long; leaflet-blades subdeltoid-ovate, equilateral, only 4--6 mm. long, apically rounded or obtuse, flabelliform-venose, usually shorter than the internodes, marginally dentate, green, glabrous and rugose above, puberulent (especially on the venation) beneath; racemes often spiciform, pedunculate, 5--10 cm. long; bracts small, subulate, about 2 mm. long; lower pedicels about 4 mm. long; calyx at first cylindrical, later turbinate, 6 mm. long at maturity, 5-costate, externally puberulent, the costae excurrent; corolla about 1.7 cm. long, glabrous; fruit obovoid, only the spines exerted from the fruiting-calyx.

The species is based on *E. W. Nelson 4415* from Alta Mira, Tamaulipas, Mexico, collected between May 14 and 22, 1898, and deposited in the Gray Herbarium of Harvard University at Cambridge Schlechtendal and Chamisso's original (1831) description of *Tamonea scabra* var. *minor*, based on *Deppe & Schiede 138*, collected on a sandy seashore at Laguna Salada, Veracruz, deposited in the Vienna herbarium and photographed there by Macbride as his type photograph no. 34357, is: "minoribus donata foliis quatuor circiter lineas longis, fructu paulo majori, brevius spinoso, altius ad spinarum basin usque calyce majori vestito; caeteris ad amussim [*T. scabra*] convenientibus, novum proponere speciem nequimus. -- Fruticulosa, floribus magnis, pallide rubellis, fundo atropurpureis."

Recent collectors describe the plant as an erect perennial herb, 30--60 cm. tall, with a "tallo correoso", and have found it in anthesis in March, June, September, and October and in fruit in June, inhabiting rock sandy soil among secondary vegetation, at altitudes of sealevel to 100 m. Nevling & Gomez Pompa refer to it as an abundant herb in secondary oak woods in Veracruz, but Ventura reports it "very scarce" in that Mexican state. Actually the Veracruz collections seem suspiciously like a natural hybrid or intermediate with *G. curassavica* f. *parvifolia* Mold. In *G. curassavica* and its varieties, however, the corolla is usually only 6--7 mm. long and the leaf-blades are scabridous above, while in *G. euphrasiifolia* the corolla is about 15 mm. long and the leaf-blades are glabrous above.

Graham & Johnston's topotype collection is described by them as "a frequent perennial in sandy clay-loam soil on shell-hash ridge (shellmound on old beach ridge) among brush of *Prosopis*, *Pithecellobium pallens*, etc."

The corollas are said to have been "violet" on *Dorantes & al. 777*, "lilac" on *Ventura A. 3375*, "light-purple" on *Nevling & Gomez Pompa 444*, and "white with purple decorations" on *Graham & Johnston 4572*. Schlechtendal & Chamisso described it as pale-pink.

Material of *G. euphrasiifolia* has been misidentified and distributed in some herbaria as *Bouchea* sp.

Citations: MEXICO: San Luis Potosí: *Kenoyer 4241*(Mi). Tamaulipas: *Graham, Crutchfield, & Johnston 4512* (Au--174694, Ld, Me-59214, Mi); *E. W. Nelson 4415* (N--photo of isotype, W--330966--isotype, Z--photo of isotype); *Rutten & Rutten-Pekelharing* [Quarles van Ufford] 529 (N--photo, S--photo, Ut, Z--photo). Veracruz:

Deppe & Schiede 138 [Laguna Salada; Macbride photos 34357] (Kr--photo, N--photo, W--photo, Z--photo); *Dorantes & al. 777* (Me--172377); *Nevling & Gomez Pompa 444* (Me--212278); *Edw. Palmer 533* (E--778659), 538 (N, W--463427); *Ventura A. 3375* (Me--99172).

GHINIA JUNCEA (Schau.) Mold., *Phytologia* 1: 169. 1935.

Synonymy: *Tamonea juncea* Schau. in A.DC., *Prodr.* 11: 529. 1847. *Tamonea iuncea* Schau. apud M. Kunz, *Anatom. Untersuch. Verb.* 34. 1911.

Bibliography: Schau. in A.DC., *Prodr.* 11: 529. 1847; Schau. in Mart., *Fl. Bras.* 9: 177. 1851; Buek, *Gen. Spec. Syn. Candoll.* 3: 469. 1858; Briq. in Engl. & Prantl, *Nat. Pflanzenfam.*, ed. 1, 4 (3a): 148. 1895; Jacks. in Hook. f. & Jacks., *Ind. Kew.*, imp. 1, 2: 1034. 1895; M. Kunz, *Anatom. Untersuch. Verb.* [thesis] 34. 1911; Mold., *Phytologia* 1: 169. 1935; A. W. Hill, *Ind. Kew. Suppl.* 9: 123. 1938; Mold., *Known Geogr. Distrib. Verbenac.*, ed. 1, 36 & 93 (1942) and ed. 2, 37 & 185. 1949; Mold., *Résumé* 89 & 456. 1959; Mold., *Fifth Summ.* 1: 150 (1971) and 2: 639 & 879. 1971; Troncoso, *Darwiniana* 18: 411. 1974; Mold. & Bromley in Harley & Mayo, *Towards Checklist Fl. Bahia* 188. 1980; Mold., *Phytol. Mem.* 2: 142 & 548. 1980; Mold., *Phytologia* 47: 416. 1981.

A green shrub, to 50 cm. tall, scabridous-pubescent throughout; stems and branches tetragonal, almost rush-like, strict, deeply 3-sulcate beneath the leaves; leaves decussate-opposite, small, usually subsessile or sessile, rather rigid; petioles very short or obsolete; leaf-blades small, rather firm, arrect or spreading, mid-green, subtriangular, marginally coarsely incised-serrate and conspicuously revolute, basally truncate, penninerved-lineate above inflorescence unilaterally racemiform, abbreviated, subsessile, 2--5-flowered; calyx-teeth about 1.5 mm. long; corolla pale blue or mauve with darker veins, the lobes broadly rotund, about 3 mm. long; drupes dark-green, subquadrate, scarcely exceeding the calyx-teeth, depressed on the upper angles, 4-horned, the horns very short and blunt, the anterior ones well developed, the posterior ones subobsolete and merely hump-like.

This species is based on *Blanchet 2566* & *3397* from the mountains around Jacobina and near Igreja Velha, Bahia, Brazil, deposited in the DeCandolle Herbarium at Geneva. Macbride photographed a duplicate of *Blanchet 2566* in the Berlin herbarium as his type photograph number 7858 and of *Blanchet 3397* in the Geneva herbarium as number 17397. Schauer (1847) comments that the species is very similar to *G. spicata*: "habitu simillima, sed notis allatis bene distincta". In his 1851 work he again points out the similarity between these two species, but affirms that *G. juncea* differs in "praeter pubem brevissimam rigidulam aequalem omnes partes virides obtudentem, etiam foliis subsessilibus sessilibusve grossius serratis racemisqve subsessilibus, corolla majore laciniis latis rotundatis sesquilineam longis, drupaque 4-corniculata insignis."

Harley and his associates encountered this plant on white sand along a small stream with marsh and surrounding cerrado on sandstone rock exposures, at 950--1000 m. altitude, in both flower and

fruit in March. The *Blanchet* 3397 cotype in the Brussels herbarium is a mixture with no. "76", which is *G. spicata* (Aubl.) Mold. The Macbride photograph number 7857 [depicting *Blanchet* 1027], distributed in at least some herbaria as "*Tamonea juncea* Schau.", actually is a photograph of a cotype of *Priva bahiensis* P. DC.

Citations: BRAZIL: Bahia: *Blanchet* 2566 [Macbride photos 7858] (Kr--photo of cotype, N--photo of cotype, W--photo of cotype), 3397 [Macbride photos 17397] (Br--cotype, Br--cotype, E--876600--cotype, Kr--photo of cotype, N--cotype, N--photo of cotype, W--1706051--cotype, W--photo of cotype); *Harley, Renvoize, Erskine, Brighton, & Pinheiro in Harley* 16667 (Z).

GHINIA SPICATA (Aubl.) Mold., *Phytologia* 1: 169. 1935.

Synonymy: *Tamonea spicata* Aubl., *Pl. Guian. Fr.* 2: 660--661, pl. 268. 1775. *Tamonea mutica* Sw., *Nov. Gen. Sp. Pl.*, imp. 1, 94. 1788. *Ghinia tamonea* J. F. Gmel. in L., *Syst. Nat.*, ed. 13, imp. 1, 2: 37. 1789 [not *G. tamonea* Raeusch., 1797]. *Ghinia mutica* (Sw.) Willd. in L., *Sp. Pl.*, ed. 6, 1: 114. 1797. *Ghinia mutica* (Sw.) Sw., *Fl. Ind. Occ. Prodr.* 2: 1090. 1800. *Tamonea mutica* Gaertn. f., *Fruct. Sem.* 3: 175, pl. 213. 1805. *Tamonea fructibus muticis, foliis tomentosis* Sw. apud Gaertn. f., *Fruct. Sem.* 3: 175, in syn. 1805. *Tamonea mutica* Pers., *Syn. Pl.* 2: 139. 1806. *Ghinia mutica* Willd. apud Lam., *Encycl. Méth. Bot.* 7: 567, in syn. 1806. *Leptocarpus chamaedrifolius* Willd. ex Link, *Jahrb. Gew.* 1 (3): 51. 1820. *Tamonia spicata* Aubl. apud Kunth, *Syn. Pl.* 2: 65. 1823. *Ghinia mutica* Sw. apud G. Don in Loud., *Hort. Brit.*, ed. 1, 248, in syn. 1830. *Priva spicata* Aubl. ex J. A. Steyerl., *Act. Bot. Venez.* 3: 156, in syn. 1968. *Ghinia spicata* Mold. apud Gibson, *Fieldiana Bot.* 24 (9): 228, in syn. 1970. *Chinia mutica* [Sw.] apud Lopez-Palacios, *Fl. Venez. Verb.* 649, in syn. 1977. *Chinia spicata* [(Aubl.) Mold.] apud Lopez-Palacios, *Fl. Venez. Verb.* 649, sphalm. 1977. *Chinia mutica* Schreb., in herb.

Bibliography: Aubl., *Pl. Guian. Fr.* 2: 660--661, pl. 268. 1775; Sw., *Nov. Gen. Sp. Pl.*, imp. 1, 94. 1788; J. F. Gmel. in L., *Syst. Nat.*, ed. 13, imp. 1, 2: 965. 1789; L. C. Rich., *Act. Soc. Hist. Nat. Paris* 1: 111. 1792; J. F. Gmel. in L., *Syst. Nat.*, ed. 13, imp. 2, 2: 965. 1796; Raeusch., *Nom. Bot.*, ed. 3, 8. 1797; Willd. in L., *Sp. Pl.*, ed. 6, 1: 114. 1797; Sw., *Fl. Ind. Occ. Prodr.* 2: 1090. 1800; Gaertn. f., *Fruct. Sem.* 3: 175, pl. 213 (inf.). 1805; Lam., *Encycl. Méth. Bot.* 7: 567. 1806; Sw., *Fl. Ind. Occ. Prodr.* 3: pl. 21. 1806; Pers., *Sp. Pl.* 3: 349. 1819; Poir. in Lam., *Tabl. Encycl. Méth. Bot.* 3: pl. 542. 1819; Link in Spreng., *Jahrb. Gew.* 1 (3): 51. 1820; Kunth, *Syn. Pl.* 2: 65. 1823; G. Don in Loud., *Hort. Brit.*, ed. 1, 248. 1830; Sweet, *Hort. Brit.*, ed. 2, 418. 1830; G. Don in Loud, *Hort. Brit.*, ed. 2, 248 (1832) and ed. 3, 248. 1839; Sweet, *Hort. Brit.*, ed. 3, 552. 1839; A. Dietr., *Syn. Pl.* 3: 610. 1843; Schau., *Linnaea* 20: [476]. 1847; Schau. in A. DC., *Prodr.* 11: 529. 1847; Schau. in Mart., *Fl. Bras.* 9: 177. 1851; Buek, *Gen. Spec. Syn. Candoll.* 3: 469. 1858; Bocq., *Adansonia*, ser. 1, 2: 126. 1862; Griseb., *Symb. Bot. Argent.* 280. 1879; Jacks. in Hook. f. & Griseb., *Ind. Kew.*, imp. 1, 1: 1027 (1893) and imp. 1, 2: 1034. 1895.

[to be continued]